

ABSTRACT

Provided is a method for producing, in a simple manner, a general-purpose dielectric insulating thin film that has a varying dielectric constant and accepts an accurate film thickness control and a control of the composition, the structure and the thickness thereof. The process includes a step (A) of making a substrate having a hydroxyl group in its surface or having a hydroxyl group introduced into its surface, adsorb a metal compound having a functional group capable of reacting with a hydroxyl group for condensation and capable of forming a hydroxyl group through hydrolysis, a step (B) of removing the excessive metal compound from the substrate surface, a step (C) of hydrolyzing the metal compound to form a metal oxide layer, and a step (D) of treating the metal oxide layer according to any one treating method selected from the group consisting of oxygen plasma treatment, ozone oxidation treatment, firing treatment and rapid thermal annealing treatment to thereby obtain a dielectric insulating thin film.